



MAINSTREAM
RENEWABLE
POWER



Ian Marlee – Partner, Trading Arrangements
OFGEM,
9 Milbank,
London,
SW1P 3GE

RE: Project Discovery: Options for delivering secure and sustainable energy supplies

Dear Mr Marlee,

Mainstream Renewable Power is a leading global renewable energy company. We are developing onshore wind projects in North America, South America and South Africa. In the German North Sea, we are developing the 1000 MW Horizont offshore project.

In the UK, we are developing two large offshore wind projects. In Scottish territorial waters we are developing the 450 MW Neart Na Gaoithe project. Additionally, through the SMart Wind consortium, we are taking forward the 4000MW Hornsea Round 3 zone with our partners Siemens Project Ventures.

Delivering projects is central to Mainstream's business and properly functioning market arrangements are fundamental to the viability of our projects. We therefore welcome the opportunity to respond to *Project Discovery: Options for Delivering Secure and Sustainable Energy Supplies*. As future consultation on market reform will be led by DECC and HM Treasury, we do not believe it appropriate to endorse any of the five options proposed but instead will take this opportunity to address key issues raised by the process.

Where We Are Now and Future Outlook

Mainstream agrees with Ofgem's assessment that the current market arrangements will be unable to deliver the UK's future energy needs. Whilst the current arrangements have been successful at delivering fossil fuel plant to meet the UK's needs at reasonable prices to customers, they are not appropriate to deliver the scale and type of energy investments needed for the future. We agree with three of Ofgem's reasons for why the current market arrangements will not allow for this success to continue; the drive to decarbonise the energy sector, the large investment needed to replace aging generation plant (and plant due to close due to LCPD), and the implications of dwindling indigenous gas supply.

However, we do not believe that Ofgem's fourth reason, the difficulties caused by the current financial crises should play a part in any decision to alter the current long term market arrangements. We believe the UK and international financial systems will return to health and will play a vital role in delivering the UK's energy needs. In fact, they will likely play a stronger role than in the past due to the large amount of capital needed. New sources of capital beyond utility balance sheets, such as pension and sovereign wealth funds, will be needed and only a well functioning financial system coupled with an effective and consistent energy regulatory framework will allow this. If Ofgem assumes that the current difficult financial climate will last for an extended period, there is a risk that policy will not be designed to allow the financial sector to fully contribute.

In addition, we believe there are several key issues not considered in *Project Discovery* that will play a significant role in the future of the UK electricity sector.

Firstly, not enough emphasis is being placed on the issues surrounding transmission and planning constraints. These are the two largest issues facing renewable energy development, especially for offshore wind. Although we welcome the introduction of the "Connect and Manage" system for grid access and we also note that Ofgem has recently sanctioned some onshore reinforcement works, access to grid is still a significant issue. For example, there is currently more capacity in National Grid's grid queue than there is operating capacity in all of GB. In addition, planning constraints have been a significant barrier to renewables deployment in the UK. Currently, less than 25% of onshore projects achieve key consents. The newly formed Infrastructure Planning Commission should reduce planning barriers and we are aware that Ofgem/DECC/National Grid are undertaking a number of further initiatives to address grid access and

charging issues. Any changes to market arrangements which may be developed following the work of *Project Discovery* need to ensure that they fully incorporate developments in these areas.

We do not believe Ofgem has fully appreciated the scale of interconnection that offshore wind has the potential to provide, and the associated benefits to GB that go along with this. Round 3 has resulted in developers developing projects (and therefore planning offshore grid connections) to the border of the UK's exclusive economic zone. This, along with similar developments in neighbouring countries implies that interconnection via offshore wind farms will be a logical and obvious next step. Increased interconnection will minimise the need for back up capacity in the UK, and will reduce cost to consumers (through greater utilization off the offshore grid). Furthermore, Ofgem states that "Interdependence with international markets exposes GB to a range of additional risks that may undermine GB security of supply." This is not true, especially with regards to electrical interdependence (interconnection). Interconnection will reduce risks and increase GB security of supply.

One development not considered in this document that will have significant implications for the UK's energy sector is the potential electrification of the transport sector. This will have a number of effects such as a significant increase in electricity demand (potentially set off an otherwise decreasing demand for electricity), as well as increased capacity for demand response allowed for by the distributed storage of electric transport batteries. On the one hand, this increase in demand could place further stress on an already stressed system. However, if the consumer can be allowed to respond to price signals (through a "Smart Grid" for example), the distributed storage that will result from the electrification of the transport industry will allow consumers to amplify their demand response. This will reduce the need for backup capacity that otherwise might have been needed due to variable sourced generation. DECC considered the electrification of transport in the Renewable Energy Strategy and the Energy Market Assessment published alongside Budget 2010 confirmed that for the UK to meet its 2050 climate change objectives, there will be a significant electrification of the transport industry.

Finally, it is clear that for the UK to meet its renewable energy targets there will need to be a significant amount of zero-marginal cost, (wind) on the system, perhaps in excess of 30% of total generating capacity. What isn't clear is how the current market arrangements will handle such a high level of wind penetration. Without changes to the current arrangements, this could lead to significant balancing problems. Additionally, zero or even negative pricing could result if wind becomes the price setter. Fortunately, there are many solutions to address this issue such as interconnection and enhanced demand side response. These are further discussed below.

Future Changes

When implementing change to market arrangements, it cannot be overstated how important it is to do so in a manner that does not undermine investor confidence. The capital required to build the UK's future energy infrastructure will largely come from the private sector. Furthermore, as renewable generation cost is almost exclusively capital cost, it is even more important that investors in renewable energy see regulatory certainty over the life of the project when making the investment decision. It is essential therefore, that change be made incrementally and that any change does not undermine previous investment decisions. *Project Discovery* proposes a number of changes to market arrangements, some of which could be implemented with little disruption.

An improved ability for demand side response would be the least disruptive to the current market arrangements and has the potential to address many of the issues associated with bringing significant amounts of variable renewable generation onto the system. A "Smart Grid" would expose consumers to price signals allowing them to match their demand with supply. Without this ability for demand side response, other more expensive solutions to address the variability of renewables, such as backup capacity would need to be considered. In addition to a "Smart Grid", the increased and distributed battery storage that will result from the electrification of the transport industry would allow consumers to leverage their demand side response. The ENSG Smart Grid working group has concluded that a Smart Grid could be widely deployed

by 2015 and have provided a roadmap to get there¹. Any changes to the market arrangements should be consistent with this work.

A minimum price of carbon would also be a welcome addition to the current arrangements that could be introduced with little disruption. It would have to work in conjunction with EU Emissions Trading Scheme and could work in conjunction with the current Climate Change Levy. Although the current ETS framework places a future cost on carbon, it is highly volatile and does not send strong or reliable enough signals to the market to induce significant investment in low carbon generation. Introducing a long term minimum price will allow long term low carbon projects, such as offshore wind, to be assessed appropriately against competing power generation investments.

An enhanced obligation on suppliers and the system operator would be a significant change from current policy but one that we believe is needed in the long term to better align market incentives with the demands of consumers. Consumers are demanding clean energy at secure and stable prices. The minimum carbon price addresses the externality of carbon and if set at an appropriate level should deliver clean energy. However, there is currently no mechanism for the market to value the contribution of security of supply which would address consumers' demand for secure and stable prices. We believe an obligation duration of between 3-5 years as proposed by *Project Discovery* is too short. Renewable power plants such as offshore wind have an expected life of 20-25 years and therefore provide security of supply over that same period of time. In order to properly value this contribution, all suppliers should be obliged to show security of fuel supply over a longer period than just 3-5 years.

A centralised renewables market, renewables tenders, and capacity tenders would all be significant departures from the current Renewables Obligation framework. After eight years, energy and financial markets have now become comfortable and confident with the operation of the RO. Any wholesale change away from this should factor in the cost of establishing market confidence in whatever framework replaces it. In addition, we know from the Non-Fossil Fuel Obligation experience that tenders have resulted in a "winner's curse" problem where the tender winners underbid what is necessary to make the projects viable and subsequently do not deliver.

However, one exception to the RO framework that requires consideration is a feed in tariff for the development of future offshore wind and marine energy; especially given their requirement to mobilise broader sources of finance than onshore renewables. The recognized success of feed-in tariffs in bringing about deployment in other markets, demonstrates that introducing a feed in tariff for these technologies would not trigger market uncertainty provided the transition was undertaken expeditiously.

The UK is at an energy crossroads. Much of the UK's existing power generation capacity is coming to the end of its useful life. Additionally, primary fuel sources are dwindling, raising significant concerns over the UK's security of energy supply. On top of this, consumers are demanding that their power come from emissions free sources. This consumer choice is reflected in the government's obligation to source 15% of its energy from renewable sources by 2020.

At the same time, offshore wind is finally reaching industrial maturity and will allow the UK to harness the tremendous renewable resource in its surrounding waters. Offshore wind has the power and scale to address all climate change and security of supply concerns. Ofgem, acting on behalf of consumers, is correct to question whether the current market arrangements will allow for these climate change and security of supply concerns to be addressed. Mainstream hopes that you find our contribution to the debate useful and looks forward to further developing our proposals through the DECC and HM Treasury processes that will result in an energy white paper in 2011.

¹ http://www.ensg.gov.uk/assets/smartgrid_routemap_executive_summary_final.pdf



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